

Express Mail Label Number: EV591301545US

Date of Deposit: March 23, 2005

Attorney Docket No. BWT-004US



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:

Yon, et al.

TITLE:

NOVEL BACE PROTEINS, NUCLEIC ACID MOLECULES
THEREFOR, NOVEL CRYSTAL STRUCTURE OF NOVEL
BACE PROTEINS AND METHODS FOR MAKING AND
USING

SERIAL NUMBER

10/762,040

FILING DATE

January 21, 2004

GROUP ART UNIT

1632

Boston, Massachusetts

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

TRANSMITTAL LETTER

Dear Sir:

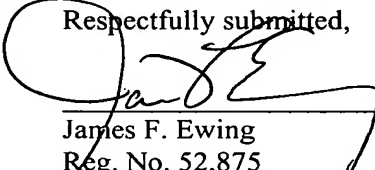
Transmitted herewith for filing in the above-referenced patent application are the following documents:

- ☒ Information Disclosure Statement;
- ☒ PTO Form 1449;
- ☒ Copies of Cited References A1, B1-B17, and C1-C24; and
- ☒ Return Postcard

If the enclosed papers are considered incomplete, the Mail Room is respectfully requested to contact the undersigned collect at telephone (617) 342-4000. No fees are believed to be due. This paper is submitted in duplicate for the Office's convenience.

Dated: March 23, 2005

Respectfully submitted,


James F. Ewing
Reg. No. 52,875
Attorney(s) for Applicants
Customer No.: 48329
Foley & Lardner, LLP
111 Huntington Avenue
Boston, MA 02199
Tel: (617) 342-4000
Fax: (617) 342-4001

03-24-05

IFW



Express Mail Label No.: EV591301545US
Date of Deposit: March 23, 2005

Attorney Docket No. BWT-004US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Yon, et al.
TITLE: NOVEL BACE PROTEINS, NUCLEIC ACID MOLECULES
THEREFOR, NOVEL CRYSTAL STRUCTURE OF NOVEL
BACE PROTEINS AND METHODS FOR MAKING AND
USING
SERIAL NUMBER 10/762,040
FILING DATE January 21, 2004
GROUP ART UNIT 1632

Boston, Massachusetts

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, Applicants hereby make of record the documents listed below and on the attached modified Form PTO-1449 (submitted in duplicate) in the above-identified application, copies of which are submitted herewith. The order of presentation of the references should not be construed as an indication of the importance of the references.

This Information Disclosure Statement is being been filed:

- ☐ within three months of the filing date of the National Application;
- ☒ prior to receipt of first office action on the merits; or
- ☐ within three months of receipt of art cited in a related foreign application.

Accordingly, no fee or certification is required. 37 C.F.R. §1.97.

A copy of each of the above-identified information is enclosed unless otherwise indicated

FIRST-NAMED INVENTOR: Yon, et al.
Information Disclosure Statement

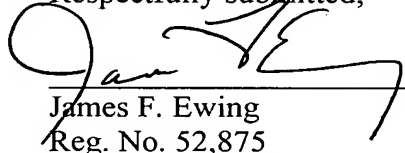
on the attached Form PTO-1449 (modified). It is respectfully requested that the Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and signs the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application.

By submitting this Information Disclosure Statement, the Applicant makes no representation that: (1) a search has been performed, of the extent of any search performed, or that more relevant information does not exist; (2) the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b); and (3) the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information. An early and favorable action is hereby requested. Please charge any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-3431, Reference No. 351044-0005.

Dated: March 23, 2005

Respectfully submitted,



James F. Ewing
Reg. No. 52,875
Attorney(s) for Applicants
Customer No.: 48329
Foley & Lardner, LLP.
111 Huntington Avenue
Boston, Massachusetts 02199
Tel: (617) 342-4000
Fax: (617) 342-4001

#143157v1

Date of Deposit: March 23, 2005

USPTO Form 1449 U.S. Department of Commerce Patent and Trademark Office				Attorney Docket No. BWT-004US		Serial No. 10/762,040	
INFORMATION DISCLOSURE STATEMENT				Applicant(s): YON, <i>et al.</i>			
				Filing Date: January 21, 2004		Group: 1632	
U.S. PATENT DOCUMENTS							
Examiner Initial		Patent No.	Date	Name	Class	Subclass	Filing Date (if appropriate)
FOREIGN PATENT DOCUMENTS							
Examiner Initial		Document No.	Publication Date	Country	Class	Subclass	Translation
							YES NO
	B1	WO96/40885	19 December 1996	PCT	C12N	9/64	
	B2	WO98/26059	18 June 1998	PCT	C12N	9/48	
	B3	WO99/64587	16 December 1999	PCT	C12N	15/12	Abstract only
	B4	WO99/31236	24 June 1999	PCT	C12N	15/12	
	B5	WO00/17369	30 March 2000	PCT	C12N	15/57	
	B4	WO00/23576	27 April 2000	PCT	C12N	9/64	
	B7	WO00/47618	17 August 2000	PCT	C07K	14/47	
	B8	WO00/58479	5 October 2000	PCT	C12N	15/52	
	B9	WO01/00663	4 January 2001	PCT	C07K	14/00	
	B10	WO01/00665	4 January 2001	PCT	C07K	14/00	
	B11	WO01/23533	5 April 2001	PCT	C12N	9/00	
	B12	WO02/25276	28 March 2002	PCT	G01N	33/483	
	B13	WO02/053594	11 July 2002	PCT	C07K	14/81	
	B14	WO02/088101	7 November 2002	PCT	C07D	295/12	
	B15	WO03/072733	4 September 2003	PCT	C12N	N/A	
	B16	WO2004/011641	5 February 2004	PCT	C12N	9/64	
	B17	EP 0855444 A2	29 July 1998	Europe	C12N	15/57	
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)							
	C1	Abagyan, <i>et al.</i> , "High-throughput docking for lead generation", <i>Curr. Opin. Chem. Biol.</i> , 2001, Vol. 5, pgs 375-382.					
	C2	Bruinzeel, <i>et al.</i> , "Recombinant insect cell expression and purification of human β -secretase (BACE-1) for X-ray crystallography", <i>Protein Expression and Purification</i> , 2002, Vol. 26, pgs 139-148.					
EXAMINER					DATE CONSIDERED		
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							

Date of Deposit: March 23, 2005

USPTO Form 1449 Patent and Trademark Office				U.S. Department of Commerce		Attorney Docket No. BWT-004US		Serial No. 10/762,040	
INFORMATION DISCLOSURE STATEMENT						Applicant(s): YON, <i>et al.</i>			
						Filing Date: January 21, 2004		Group: 1632	
U.S. PATENT DOCUMENTS									
Examiner Initial		Patent No.		Date		Name	Class	Subclass	Filing Date (if appropriate)
FOREIGN PATENT DOCUMENTS									
Examiner Initial		Document No.		Publication Date		Country	Class	Subclass	Translation
									YES NO
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)									
	C3	Ermolieff, <i>et al.</i> , "Proteolytic Activation of Recombinant Pro-memapsin 2 (Pro- β -secretase) Studied with New Fluorogenic Substrates", <u>Biochemistry</u> , 2000, Vol. 39, pgs 12450-12456.							
	C4	Fischer, <i>et al.</i> , "The disulphide bonds in the catalytic domain of BACE are critical but not essential for amyloid precursor protein processing activity", <u>J. Neurochem.</u> , 2002, Vol. 80, pgs 1079-1088.							
	C5	Ghosh, <i>et al.</i> , "Structure-Based Design: Potent Inhibitors of Human Brain Memapsin 2 (β -Secretase)", <u>J. Med. Chem.</u> , 2001, Vol. 44, pgs 2865-2868.							
	C6	Ghosh, <i>et al.</i> , "Design of Potent Inhibitors for Human Brain Memapsin 2 (β -Secretase)", <u>J. Am. Chem. Soc.</u> , 2000, Vol. 122, No 14, pgs 3522-3523.							
	C7	Greer, <i>et al.</i> , "Application of the Three-Dimensional Structures of Protein Target Molecules in Structure-based Drug Design", <u>J. Med. Chem.</u> , 1994, Vol. 37, No. 8, pgs 1035-1054.							
	C8	Hong, <i>et al.</i> , "Structure of the Protease Domain of Memapsin 2 (β -Secretase) Complexed with Inhibitor", <u>Science</u> , 2000, Vol. 290, pgs 150-153.							
	C9	Howlett, <i>et al.</i> , "In search of an enzyme: The β -secretase of Alzheimer's disease is an aspartic proteinase", <u>TINS</u> , 2000, Vol. 23, No. 11, pgs 565-570.							
	C10	Hussain, <i>et al.</i> , "Identification of a Novel Aspartic Protease (Asp 2) as β -Secretase", <u>Mol. Cell. Neurosci.</u> , 1999, Vol. 14, pgs 419-427.							
	C11	Jones, <i>et al.</i> , "Docking small-molecule ligands into active sites", <u>Curr. Opin. Biotech.</u> , 1995, Vol. 6, pgs 652-656.							
	C12	Lin, <i>et al.</i> , "Human aspartic protease memapsin 2 cleaves the β -secretase site of β -amyloid precursor protein", <u>Proc. Natl. Acad. Sci. USA</u> , 2000, Vol. 97, No. 4, pgs 1456-1460.							
	C13	Mallender, <i>et al.</i> , "Characterization of Recombinant, Soluble β -Secretase from Insect Cell Expression System", <u>Molecular Pharmacology</u> , 2001, Vol. 59, No. 3, pgs 619-626.							
EXAMINER							DATE CONSIDERED		
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.									

USPTO Form 1449 Patent and Trademark Office				U.S. Department of Commerce		Attorney Docket No. BWT-004US		Serial No. 10/762,040	
INFORMATION DISCLOSURE STATEMENT						Applicant(s): YON, <i>et al.</i>			
						Filing Date: January 21, 2004			Group: 1632
U.S. PATENT DOCUMENTS									
Examiner Initial		Patent No.	Date	Name	Class	Subclass	Filing Date (if appropriate)		
FOREIGN PATENT DOCUMENTS									
Examiner Initial		Document No.	Publication Date	Country	Class	Subclass	Translation		
							YES	NO	
OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)									
	C14	Patel, <i>et al.</i> , "Apo and inhibitor complex structures of BACE (β -secretase)", <i>J. Mol. Biol.</i> , 2004, Vol. 343, pgs 407-416.							
	C16	Roberds, <i>et al.</i> , "BACE knockout mice are healthy despite lacking the primary β -secretase activity in brain: implication for Alzheimer's disease therapeutics", <i>Human Mol. Genet.</i> , 2001, Vol. 10, No. 12, pgs 1317-1324.							
	C16	Shi, <i>et al.</i> , "The Pro Domain of β -secretase Does Not Confer Strict Zymogen-like Properties but Does Assist Proper Folding of the Protease Domain", <i>J. Biol. Chem.</i> , 2001, Vol 276, No. 13, pgs 10366-10373.							
	C17	Sinha, <i>et al.</i> , "Purification and cloning of amyloid precursor protein β -secretase from human brain", <i>Nature</i> , 1999, Vol. 402, pgs 537-540.							
	C18	Tung, <i>et al.</i> , "Design of Substrate-based Inhibitors of Human β -secretase", <i>J. Med. Chem.</i> , 2002, Vol. 45, pgs 259-262.							
	C19	Turner, <i>et al.</i> , "Substrate specificity of memapsin 2: Basis for Inhibitor Drug design for Alzheimer's Disease", <i>FASEB J.</i> , 2001, Vol. 15, No. 4, pg A538, Abst. # 443-12.							
	C20	Turner, <i>et al.</i> , "Subsite specificity of memapsin 2 (β -secretase): implications for inhibitor design", <i>Biochemistry</i> , 2001, Vol. 40, No. 34, pgs 10001-10006.							
	C21	Vassar, <i>et al.</i> , " β -Secretase Cleavage of Alzheimer's Amyloid Precursor Protein by the Transmembrane Aspartic Protease BACE", <i>Science</i> , 1999, Vol. 286, pgs 735-741.							
	C22	Vassar, <i>et al.</i> , "The β -secretase BACE", <i>J. Mol. Neurosci.</i> , 2001, Vol. 17, pgs 157-170.							
	C23	Verlinde, <i>et al.</i> , "In search of new lead compounds for trypanosomiasis drug design, A protein structure-based linked-fragment approach", <i>J. Computer-aided Mol. Design</i> , 1992, Vol. 6, pgs 131-147.							
	C24	Wei, <i>et al.</i> , "Expression, purification and activity measurement of soluble BACE protein in <i>E.coli</i> ", 2002, Vol. 34, No. 4, pgs 498-501 (abstract in English only).							
EXAMINER						DATE CONSIDERED			
<small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.</small>									